



## Appendix B: Cumulative Actions





## Appendix B

### Cumulative Actions

This appendix presents a summary of the past, present, and reasonably foreseeable projects used in the analysis of cumulative effects in the *Mariposa Grove FEIS* (Chapter 3). The Council on Environmental Quality describes a cumulative impact as follows (Regulation 1508.7):

A “Cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative projects listed below include past and present actions, as well as planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. There are no specific future projects that could affect the project area that have been identified at this time. The Mariposa Grove FEIS evaluates these actions in conjunction with the impacts of an alternative as part of the cumulative analysis to determine if they have any additive impacts on a particular resource. For additional information regarding the plans and projects in Yosemite listed below, visit the National Park Service (NPS) Planning, Environment and Public Comment website at: <http://parkplanning.nps.gov/>.

#### Past Plans and Projects

- General Management Plan

The GMP is the blueprint for improving and preserving the park for the next century. The purpose of this plan is to provide a clearly defined understanding of the resource conditions, opportunities for visitor experiences, and general kind of management, access, and development that will best achieve the park’s purpose and conserve its resources unimpaired for the enjoyment of future generations. It was finalized and signed in 1980. The plan describes actions to achieve five broad goals:

- Reclaim Priceless Natural Beauty
- Markedly Reduce Traffic Congestion
- Allow Natural Processes to Prevail
- Reduce Crowding
- Promote Visitor Understanding and Enjoyment

- Mariposa Grove Comfort Station Log Replacement and Repair

The Mariposa Grove Comfort Station was constructed in 1931. It is a sugar pine log building. The sill and spandrell logs were experiencing deterioration and were replaced with in-kind material and corner notching. In addition, some of the other logs needed “Dutchman” repairs. The log crowns, just past the notches, have some decay and some of them were replaced or repaired using preservation techniques. Any and all smaller cosmetic problems were corrected during this project.

- Mariposa Grove Interpretive Sign Installation

The purpose of this project was to create a sense of arrival at the Mariposa Grove of Giant Sequoias and provide opportunities to visitors with information about the amazing resources of the giant sequoia Grove. The signage installation created a self-guiding trail through the Grove and brings the Mariposa Grove exhibits and related components up to the same caliber of that at Tuolumne Grove, Olmsted Point, and Yosemite Falls.

Thirteen new wayside exhibits were created and installed along the trail through the Grove, to replace the damaged metal ones including:

- Two new peeled log orientation exhibits; one at the trailhead and one at the tram boarding area.
  - A peeled log interpretation panel at the trailhead.
  - Two new brochure boxes; one at the trailhead and one at the tram boarding area.
  - Two new map/directional signs along the trail.
  - Tactile components and custom illustrations will be added.
- Mariposa Grove Museum Lighting Installation
 

The Mariposa Grove Museum houses excellent interpretive displays, yet the lack of lighting hindered the visitors' experience and also causes a safety hazard (visitors and employees have tripped and fallen in the space). This project installed rechargeable battery-powered lighting to help showcase the exhibits, provide visitor safety, and preserve the historic character of the building. The lights are only used during daytime museum visiting hours.
- Mariposa Grove Trails and Asphalt Removal
 

This project removed asphalt from an abandoned road in the upper Mariposa Grove. The area was restored to its natural condition with a 2-foot dirt trail running through it. Trail signs were replaced throughout the Grove, and fencing installed to further protect the giant sequoias.
- Replace Mariposa Grove Remote Access Weather Station with Standard Tower
 

The purpose of this project was to replace the Remote Access Weather Station (RAWS) in the Mariposa Grove with a permanent 'Rohn-type' weather tower. The existing station was a 'tripod' structure typical of RAWS sites and the State of California Department of Water Resources wanted to replace it with a standard 32.8-foot tall tower. The existing RAWS has a 20-foot tall mast. The new tower is painted black or fabricated with black anodized metal and is anchored by a concrete footer that was poured into a hole approximately 2 feet in diameter by 4 feet deep. The new tower hosts all the standard weather metrics currently collected by the RAWS (temperature, humidity, solar radiation, fuel moisture and temperature, rainfall, and wind speed and direction) as well as snow depth. The tower site is in a clearing not visible from roads or trails and not near any giant sequoia trees.
- South Entrance Boundary Marker Stabilization
 

The South Entrance Boundary Marker was constructed by the Civilian Conservation Corps between 1938 and 1940. The marker is located at Yosemite's south boundary on Wawona Road. It is constructed of granite stone and serves as an entrance sign and boundary marker. The marker is an integral part of the carefully engineered road system that has been designed to be compatible with the natural landscape and mirrors the rustic style stonework found at the South Entrance Ranger Duplex, South Entrance Station Office and Comfort Station. The structure addressed with this project has a total surface area of approximately 244 square feet. Stabilization activities for this project focused on five tasks: (1) removing overgrown vegetation and eroded bank dirt to expose the masonry; (2) cleaning the entire surface utilizing a pressure washer and clean, clear water to expose deteriorated mortar joints; (3) selectively removing deteriorated, failed mortar joints and repoint with appropriate mortar; (4) replacing missing stones and resetting loose, displaced stones; and (5) replacing the missing log and historic sign utilizing the original 1938 construction blueprints. All preservation treatments and project supervision were accomplished "in-house" by the Yosemite historic preservation team.

- South Entrance Leach Field Repair

An additional 800 feet of leaching lines parallel to the existing South Entrance leach field were installed. Eight new inspection ports for monitoring and three distribution valves for effluent distribution were also installed. The existing dosing station was replaced. The leach field services the South Entrance Station, Ranger housing, and entrance comfort station at Wawona.

- South Entrance Office Reroute Telephone Line

This project involved a reroute of the telephone lines to the South Entrance office/residence (duplex) and the removal of an existing overhead line that was unsightly and difficult to maintain. The project included protection of the access point from snow plow damage with a standard green telephone access pedestal (the access point is currently protected by piles of rocks). NPS staff and equipment were used for all trenching activities.

- South Entrance Safety Improvements and Office Modernization

This project addressed electrical, safety, and ergonomic concerns in the South Entrance Office. Wire molding was surface-mounted to the office walls. Twenty-four additional outlets were added to the office on at least four new circuits. A metal rod was driven into the ground near the breaker panel on the outside of the building. Two existing phone lines were rerouted. The office layout was changed to be more efficient and ergonomic, which included rearranging the furniture and adding additional storage cabinets.

- South Entrance Station Re-establish Exit Lane

This road improvement project increased visitor and employee safety at the South Entrance Station. The project included re-establishing the old road alignment for exiting southbound traffic from Yosemite National Park and repairing the existing pavement surrounding the South Entrance kiosk.

The project reduced congestion and the amount of large vehicle traffic entering the intersection.

The project improved safety by allowing exiting vehicular traffic to make a gentle right-turn prior to entering the existing congested intersection. This entailed:

- Completing an initial geotechnical investigation to determine the road's design profile. This would include two borings up to 10 feet deep (6 inches in diameter) and three borings up to 2 feet deep (6 inches in diameter).
- Removing 12 trees between 12 to 36 inches in diameter.
- Regrading and compacting the road subgrade. The compacted fill and base material would be used to create a structurally sound sub-base.
- Installing final compacted asphalt pavement.
- Adding curbing, pavement markings and signage.
- Installing rumble strips and LED stop signs.
- Relocating the existing barriers with new curb features.
- Relocating telecommunication and power lines, a light pole, as well as abandonment of an existing ventilation shaft.

- South Entrance Traffic Safety Improvements

This project entailed adding temporary traffic safety improvements to the South Entrance Station. Thirteen 10-foot sections of K-rail were installed within the road prism, for traffic entering and exiting the park, and were secured in place by using 3/4-inch rebar driven approximately 2 feet into the previously disturbed paved surface. New striping was painted onto paved road surfaces leading up to the middle kiosk, separating traffic into two lanes. Two new signs were installed, one directional sign and one sign indicating the narrow exit

lane width. Removable channelizers were installed at the entrance lanes between the kiosks and the “T” intersection in an effort to prevent vehicles from crossing lanes.

- Tachyon Satellite Equipment Installation (Phase 4)

This satellite equipment installation project provided a Local Area Network/Wide Area Network connection to various operational teams in areas where traditional high-speed data connectivity does not exist. There were two locations in Phase 4: South Entrance Station and Lake Eleanor Ranger Office. The approximately 47-inch dish antenna was mounted to a free-standing pole installed 3 to 5 feet above ground at each site. Antennas were placed in the least visible locations possible while still providing sufficient satellite communication to deliver high-speed data connectivity. Intrusion into the areas around the buildings and landscapes was minimized with limited tree-trimming and removal. The Tachyon installer determined the locations for dish installation during initial site surveys. Each site was visited by the park’s History, Architecture and Landscapes staff. Tachyon engineers and park staff advised painting each dish Wosky Brown for best operational and visual results.

- Comprehensive Ecological Restoration Projects

The NPS completed a suite of ecological restoration projects throughout Yosemite during the last several decades. The Merced River was a focus for many projects including the removal of the Cascades Diversion Dam and Happy Isles Dam, and river-related ecological restoration at Eagle Creek, Lower River, former El Capitan Picnic Area and Dump, Devil’s Elbow, Lower Yosemite Valley, Sentinel Bridge, North Pines, and Housekeeping Camp. Other restoration projects in Yosemite Valley included ecological restoration at Cook’s Meadow, Happy Isles Fen, Happy Isles Gauging Station Bridge Removal, and Fern Springs. Elsewhere in the park, ecological restoration projects took place in the Wilderness, Wawona Meadow, the Mariposa Grove of Giant Sequoias, and other areas. These projects improved aquatic, meadow, riparian, and upland habitats throughout the park.

- Wawona Meadow Restoration

*Phase I*

This project restored ecological processes in Wawona Meadow, which is habitat for two threatened bird species (great gray owl and willow flycatcher) and several sensitive plant species.

Data gathering Phase 1 included the following: meadow hydrology, wildlife habitat, invasive plant species, special status plant species, cultural landscape, historic features, archeological sites, American Indian use, visitor use, helicopter operations, stock use, fire, PG&E access, trailhead parking, and road and trail maintenance.

Specifically, park staff:

- Conducted vegetation, hydrologic and wildlife monitoring, assessments and surveys, including wetland delineation.
- Assessed hydrologic diversions and identify solutions for ecological restoration.
- Conducted cultural resource and landscape assessments to identify cultural resources and provide recommendations for protection.
- Consulted with American Indian tribes to identify visitor groups and develop interpretive guidelines.
- Analyzed sediment/pollen cores to determine fire history and vegetation changes of Wawona Meadow.
- Eradicated Velvet grass (invasive species) through the use of herbicides in accordance with the Invasive Plant Management Plan.
- Removed small conifers no greater than 6 inches in diameter, breast height adjacent to the historic fence, chutes, and corral to improve protection from fire.

- Removed asphalt associated with the Wawona Meadow loop road that is eroding and affecting hydrology.
- Completed an Ecological Restoration Management Plan for Wawona Meadow, incorporating all of the above information and issues.

### *Phase II*

Ditches that were constructed in the Wawona Meadow in 1936 have altered its hydrology by disrupting both surface and subsurface flow, lowering groundwater levels, drying out adjacent areas, and altering plant communities. The ditch on the south side of the meadow extends for one mile and was reinforced with 22 buried concrete weirs. Fourteen of those weirs are more than 50 percent exposed. Most of them are located in the 982-foot length of the ditch that has eroded to 10 feet deep. Water flows through the ditch for most of the year, draining the groundwater from the meadow. This is evidenced by the dominance of upland (rather than wetland) and non-native plants adjacent to the gullied sections of the ditch. The rest of the ditch varies: some parts have slow-moving water (1 to 3 feet deep) and other parts are heavily vegetated with no water flow. The ditch on the north side of the meadow is mostly shallow and has less impact on hydrology. Monitoring of hydrology, plant communities, and wildlife would help direct restoration actions.

Under Phase II, the project implemented the following actions:

- Removed concrete weirs above ground level and recycled out of the park.
  - Filled sections of the ditch with 4,000 cubic yards of native fill.
  - Placed “plugs” or grade-control structures to re-contour the area and discourage concentrated water flow.
  - In shallower sections of the ditch, pulled back the remaining soil berm.
  - Salvaged plants and topsoil prior to restoration disturbance.
  - Collected native seeds from adjacent areas.
  - Revegetated newly restored areas by replacing topsoil and salvaged plants, seeding, and planting willow.
  - Placed five wayside exhibits around the meadow loop describing meadow ecology, historic events, and the restoration process.
- Vegetation Management Plan

The Vegetation Management Plan is an addendum to the Yosemite National Park Resource Management Plan (RMP) (1993) and is guided by the 1980 General Management Plan. The purpose of the plan is to:

- Delineate the legislative and administrative requirements that guide development of vegetation management objectives;
- Refine the goals and objectives for vegetation management that are established in the RMP;
- Describe the dynamic environment of vegetation within the park and the social, cultural, and natural processes that influence the vegetation;
- Discuss the current vegetation management issues, define management objectives, management techniques and strategies for achieving objectives, and information needed; and
- Provide a summary of vegetation management planning needs to be addressed in the future, including the roles and responsibilities for planning and implementation.

The framework of the plan provides guidance for specific implementation plans to be developed for vegetation management in Yosemite. Vegetation management projects are ongoing.

- Wawona Tunnel Safety Improvements

The purpose of this project was to improve safety within the Wawona tunnel. Work included the design and installation of new fire extinguishers and call boxes within the tunnel, and the design and installation of approximately 2,600 linear feet of new underground power line.

## **Present and Ongoing Plans and Projects**

- Scenic Vista Management Plan

The Scenic Vista Management Plan created a program to replace the park's current ad hoc approach to scenic vista management with a comprehensive strategy to prioritize viewpoints for management, identify which methods of vegetation clearing are appropriate at what times and in which places, and describe what trees and brush may need to be removed to restore the view at high-priority vistas, including views at the Grizzly Giant and the Museum. Implementation began in 2012. Proposed vista management methods could include fire, mechanical thinning, and trimming.

- South Entrance Station Kiosks Replacement

The goal of this project is to design and construct safe, secure, accessible, and high performance entrance station kiosks at the South Entrance of the park on Wawona Road, and the project should be completed at the end of 2013.

This project entails relocating the new kiosks along Wawona Road approximately 350 feet (315 feet straight line measurement) south of the existing kiosks' location. Work includes approximately 43,000 square feet of fill and 7,500 square feet of cut along the east side of Wawona Road to allow for placement of the three new kiosks and the entrance and exit paved surface around the kiosks. This required the removal of approximately 135 trees between 4 inches and 48 inches diameter at breast height. Tree removal occurred in Fall 2012.

Implementation will be complete in 2014. When completed, the work will include:

- constructing three new, 8 feet x 14 feet permanent kiosks;
- relocating new utility lines (gas, electric, and telecommunications);
- installing curbing, signs, and landscaping around new permanent kiosks;
- installing security upgrades including video cameras;
- conducting five geotechnical and pavement borings within the project area to determine the detailed soil conditions (8-inch diameter x 10 feet maximum depth); and
- installing an upsized culvert and a wildlife crossing.

- Concession Services Plan

This plan supplements the 1980 General Management Plan for Yosemite National Park. Revisions to certain concession services action items of the General Management Plan are described, and the environmental consequences of those items are evaluated. The final plan reduced overall lodging, replaced lodging at Yosemite Lodge with economy cabins and cottages rather than motel units, retained 150 tent cabins at Curry Village (rather than 100), and increased food service seats, among other actions.

- Comprehensive Interpretive Plan

The purpose of this plan is to outline a comprehensive approach to interpreting park natural and cultural resources. The Comprehensive Interpretive Plan (CIP) process is established in Director's Order 6 and is the basic planning component for interpretation. The product is not the plan, but an effective and efficient interpretive program that achieves management goals, provides appropriate services for visitors, and promotes visitor experiences.



The heart of the CIP is the Long-range Interpretive Plan (LRIP) that defines the overall vision and long-term (5 to 10 years) interpretive goals of the park. The process that defines the LRIP also encourages development of targeted, realistic strategies and actions that work toward achievement of its goals. Actions divided into annual, achievable steps are reproduced in the Annual Implementation Plan. Creating annual plans via this “stepping down” of the LRIP simplifies much of the annual planning process because specific goals already have been identified in the LRIP. The last section of the CIP is the Interpretive Database, which is a compilation of information needed to build the other two components. It includes media inventories, the park’s strategic plan, enabling legislation, visitor surveys, reports, a bibliography, and other basic information.

- Yosemite Environmental Education Center

The purpose of this project is address issues of deterioration and use at the Yosemite Institute environmental education campus at Crane Flat. The campus at Crane Flat has served as an educational facility since 1971, and the facilities are comprised of older buildings and structures that have been assembled over time and were not originally designed for educational purposes. Most of the Crane Flat campus structures and utilities are nearly 70 years old, are energy inefficient, and are increasingly difficult to retrofit to achieve modern standards for health, safety, and accessibility.

The selected alternative presents a plan to construct a new campus at Henness Ridge and restore Crane Flat to natural conditions. These new facilities would accommodate 224 students and 20 staff. New utilities and a firehouse would be installed to accommodate the new campus, and the new facilities would be universally accessible and meet fire, health, and safety standards.

- Fire Management Plan/Operational Fire Management Plan

Yosemite National Park’s fire management program employs a variety of methods to accomplish and support fire and resource management objectives and to reduce the risk of wildfire in and adjacent to the park. Strategies in this plan are based on knowledge gained from fire and fuels research and monitoring, and from experience gained in Yosemite National Park over the last 50 years. Over the last 30 years, federal fire policy has changed from suppression of all wildfires to a policy allowing a single fire to be used as a tool to meet multiple land management and public safety objectives. After more than 30 years of proactive response to wildland fire, the park is far from restoring natural fire regimes to the entire park landscape, though significant inroads have been made. While fuel reduction and prescribed burning have increased since the 1990 A-Rock Fire, developed areas are still at risk from uncontrolled wildland fires. The 2001 Federal Fire Policy specifically mandates public land agencies to reduce the amount of forest and shrubland fuels around areas with homes and buildings, and to restore ecosystems to a more natural, fire-tolerant balance. In response, the NPS has issued new fire management guidelines that require updated fire management plans. Yosemite National Park’s 2008 Operational Fire Management Plan serves to utilize the new fire management guidelines in outlining procedures for managing fire in Yosemite National Park; for restoration and maintenance of ecosystems, for reduction of hazard fuels, for protection of natural and cultural resources, and for protection of wildland urban interface communities. Implementation of the fire management plan is ongoing.

- Fuels Reductions/Forest Rehabilitation Projects (U.S. Forest Service)

The purpose of these projects is to reduce the intensity and spread of wildfires across the landscape and near communities, and to reduce stand density within the lower and mid canopy layers of conifer stands to such that level provides for increased stand resiliency, growth, and vigor. The Sierra and Stanislaus national forests are both conducting a variety of projects aimed at reducing fuels and/or restoring more natural conditions in their west-slope Sierra forests. To accomplish these goals, workers in the forests thin conifer stands to

reduce stand densities and ladder fuels; masticate ladder fuels and brush/shrub patches; utilize prescribed burning, understory and pile; manually treat and/or prescribed burn noxious weed infestations; and site prepare and plant failed conifer plantations.

Scheduled/projected completion: Some form of fuel reduction/forest restoration is ongoing at all times in the west-slope Sierra national forests.

- Integrated Transportation Capacity Assessment

This project develops traffic and visitor use computer simulation models to assist transportation planning, user capacity management, and operations.

- Yosemite Area Regional Transportation System

The Yosemite Area Regional Transportation System (YARTS) is a multi-agency effort to provide public transportation options, reduce reliance on automobiles, and improve regional air quality. Since its start in May 2000, the YARTS has been providing visitors to the Yosemite region with a comfortable, economical, and convenient alternative to driving. YARTS provides regularly scheduled public transit service into Yosemite National Park and the gateway communities along its routes. In addition to year-around service from Merced to Yosemite Valley, during the summer months, YARTS also provides service along the Highway 120 corridor between Sonora and Yosemite as well as to/from Mammoth Lakes in Mono County on Highway 395 to the east of the park. The YARTS schedule makes connections with all intercity transportation providers in Merced: Amtrak, Greyhound, and Great Lakes Airlines at the Merced Airport. In Mono County, YARTS allows connections with "The Crest" bus that runs between Reno, Nevada, and Lancaster, California, on Highway 395. Within the park, YARTS makes connections with all shuttle services including the free Valley Shuttle and the free Tuolumne Meadows Shuttle (summer only).

- Invasive Plant Management Plan Update (NPS)

The purpose of this plan is to provide park resource managers with the necessary planning tools and procedures for effectively and efficiently managing non-native invasive plants. The primary goal is to create a plan that is adaptive, that allows managers to adapt to changing conditions and needs. A methodology would also be created for assessing the efficacy and impacts of new herbicides, and assessing various management guidelines and tools.

An environmental assessment was completed for this project and released for public review in 2010. A Finding of No Significant Impact was approved by the Regional Director in August 2010. Project implementation is under way.

- Invasive Plant Control (California Department of Transportation)

The California Department of Transportation (Caltrans) controls invasive plants along rights-of-way in several areas adjacent to Yosemite National Park. Yellow star-thistle is controlled along Highway 120 in Tuolumne County outside the park using the herbicide Transline (clopyralid). Caltrans does not currently use herbicides along Highway 140 within the Merced River corridor. Additionally, Caltrans works with individual county agricultural commissioners to respond to reports of invasive plants within the Caltrans rights-of-way.

- Invasive Plant Control (Mariposa County)

Mariposa County actively controls several species of invasive plants in areas adjacent to the park. Mariposa County treats yellow star-thistle with a combination of mechanical, biological, and herbicide control techniques. Herbicides include Transline (clopyralid), Milestone® (aminopyralid), Roundup® (glyphosate), Rodeo® (glyphosate), and Accord (glyphosate). Yellow star-thistle control occurs in several locations throughout the county, and includes the Merced River Canyon up to the park boundary. Other priority species under county control are Iberian star-thistle and diffuse knapweed.

- Draft Merced Wild and Scenic River Comprehensive Management Plan

The NPS is currently preparing a new comprehensive river management plan and environmental impact statement for the Merced Wild and Scenic River within Yosemite National Park. The purpose of the plan is to guide management strategies and projects that protect, enhance, and restore the river's outstandingly remarkable values for the next 20 or more years. The plan will address a wide range of issues, including restoration, commercial development in the river corridor, user capacity, and facilities. As part of this planning effort, NPS addresses concerns related to parking at Wawona, where many visitors park and take the shuttle to the Mariposa Grove during high visitation. The plan also considers expansion of regional transit options. Regional bus service, similar to that provided on the Highway 140 corridor, would be introduced that would serve communities to the south of the park, including Fresno. The existing Wawona shuttle service would continue to serve key destinations, including the Mariposa Grove. Preparation of the environmental impact statement was released for public review in 2013.

- Motorized Travel Management Plans

The U.S. Forest Service will be developing Travel Management Plans and Forest Plans for all national forests in California over the next few years. Travel Management Plans specify what forms of travel are allowed in what areas of the national forests. Forest Plans guide where and under what conditions an activity or project on national forest lands can generally proceed. Some of the forests have completed one or both of these tasks.

- Parkwide Communication Data Network

Yosemite National Park plans to begin a Communications Data Network (CDN) infrastructure upgrade utilizing available, commercial off-the-shelf technology supporting a single "hybrid communication backbone" employed throughout the park—to maximize existing equipment use, minimize current and planned costs, to fulfill the park's future operational and security needs. This "backbone" would be a microwave and fiber optic pipeline used to transfer computer LAN data, radio communications, security and safety video systems, telephony, burglar/intrusion, fire alarm systems, traffic collection data, and telemetry throughout Yosemite. Upgrading the network also serves to enhance compliance and utilization of the narrowband and digital P25 compliant radio infrastructure as well as providing enhanced LAN connectivity for remote areas such as Wawona, Crane Flat, Hodgdon Meadows, and Tuolumne Meadows.

The CDN is designed to serve six geographic areas of the park as well as the five park entrance stations. The geographic areas include El Portal, Yosemite Valley, Wawona, Crane Flat, Hodgdon Meadows, Tuolumne Meadows, and Hetch Hetchy. The final installation would be a hybrid infrastructure, based around proven microwave technology that would link the geographic areas with multiple T-3 level bandwidth and would be managed as necessary by park staff. There would be no need to rely on an independent service provider for maintenance of the system, as the backbone would be maintained by park staff.

An environmental assessment was completed for this project and released for public review in 2010. A Finding of No Significant Impact was approved by the Regional Director in April 2010. Project implementation is under way parkwide through 2015. The tower built in 2011 will receive additional equipment (microwave dishes and radio equipment within the existing shelter and replacing the existing generator with a smaller one).

- Parkwide Traffic Management and Information System

This project designs and implements a real-time, information-based traffic management system to provide visitors and park staff information on traffic conditions throughout the park. This project would use the recently developed traffic model and updated traffic counter

system to provide a web-based interface so that traffic and weather information can be accessed in real time.

- Parkwide Forestry Work Plan

The purpose of the Yosemite National Park Forestry Program is to detect and mitigate or abate tree hazards before they fall and cause injury or damage to people, property, or facilities. Development zones, roads, and other facilities have been established in forested areas of the park. Fire exclusion and hydrological manipulation have changed the park's forests and woodlands, and forest stands have not stabilized. Tree failures within Yosemite National Park developed areas have killed several people, seriously injured others, and cause over one million dollars in property damage. Public Law (16 USC 3, and 54), NPS Management Policies (8.8), NPS-77, Special Directive 82-6, and the Yosemite Resource Management Plan, Vegetation Management Plan, and Fire Management Plan provide a framework for hazardous tree management that would minimize threats to life and property from the failure of hazard trees within developed areas. The Forestry Worker Supervisors, Park Forester, and contractors systematically inspect the trees for visible defects and prescribe mitigations or abatement, and accomplish the work as soon as practicable, oftentimes concurrent with inspections. Supervisors evaluate pruning, topping, and removal options that might preserve important habitat prior to prescribing tree takedown. Comprehensive tree hazard management involves warning visitors and residents that trees within the park may fall, and advisories are provided on the Yosemite National Park website, the *Daily Report*, and in other park publications.

- South Fork and Merced Wild and Scenic River Implementation Plan

The purpose of this plan is to provide long-term protection of natural and cultural resources and management of the South Fork of the Merced River for the use and enjoyment of visitors, such that the river would be unimpaired for future use and enjoyment as a natural setting. The U.S. Forest Service and the Bureau of Land Management developed a joint South Fork and Merced Wild and Scenic River Implementation Plan in 1991 for the segments of the main stem and South Fork of the Merced River that are under the jurisdiction of these agencies. The segments include a 15-mile portion of the main stem extending from the El Portal Administrative Site to a point 300 feet upstream of the confluence with Bear Creek; a 21-mile segment of the South Fork that flows from the park boundary to the confluence of the Merced River; and a 3-mile segment of the South Fork just upstream of Wawona, where the NPS has jurisdiction over the north side of the river and the U.S. Forest Service has jurisdiction over the south side.

- Yosemite Changeable Message Signs Installation in Southern Half of Park

This project will enable improved communication to park visitors on the status of the park's shuttle buses through development of a visitor information system for all the shuttle bus systems in Yosemite Valley, Mariposa Grove/Wawona, Badger Pass, and Tioga Road.

- Wilderness Management Plan

NPS will be updating the 1989 Yosemite National Park Wilderness Management Plan. The objective of updating the plan is to provide guidance to park operations for the successful management of Yosemite's designated wilderness, which comprises approximately 94 percent of the park. Scoping for the Wilderness Management Plan is anticipated to occur in 2014.

- Wawona Road Wildlife Crossings

This project takes proactive measures to reduce Pacific fisher mortalities from vehicle collisions (road-kill) along Wawona Road by building innovative wildlife crossing structures



that facilitate safe animal movement. Pacific fishers are a candidate for listing under the federal Endangered Species Act, and recent camera research in the park indicates that a very small population exists in the southern portion of Yosemite, including the Mariposa Grove of Giant Sequoias, along Wawona Road near Chinquapin, and near Wawona. Fishers inhabiting this area of the southern Sierra Nevada are at the northernmost tip of their current range and must be able to safely cross the road on a regular basis if their population is to recover by expanding northward into historically occupied areas. Since 2007, six fisher road-kill mortalities have been recorded along Wawona Road, which bisects a narrow corridor of highly suitable fisher habitat. Within this same time period, three additional fishers have been killed by vehicles just south of the park on Highway 41 in Sierra National Forest. Wildlife crossing structures would provide a safer option for animals inhabiting this narrow corridor of suitable habitat to cross the road, and may help give this small fisher population its best chance at survival and potential recovery.

- **Wilderness Sierra Nevada Yellow-legged Frog Reintroduction and Trout Eradication Project**

In Yosemite, there are as few as six populations of Sierra Nevada yellow-legged frogs with 50 or more individuals, 24 populations with 10 to 49 individuals, and 164 populations with one to nine individuals. The decline of the Sierra Nevada yellow-legged frog is being driven primarily by the introduction of non-native fish and the emerging infectious disease, chytridiomycosis. This project will increase the amount of high-quality aquatic habitat for the Sierra Nevada yellow-legged frog and improve the success rate of Sierra Nevada yellow-legged frog reintroductions.

This project entails: (1) eradicating fish from 10 to 18 lakes, ponds, and marshes using gill nets, electrofishers, and fish traps; (2) transporting equipment and gear to restoration sites using pack stock; (3) temporarily installing bear boxes at restoration sites at the beginning of each season and packing them out at the end of the season; (4) conducting experimental translocations including augmenting two existing translocation sites and conducting one new translocation; (5) transporting translocated frogs by helicopter; (6) treating frogs prior to translocation with antifungal drug Itraconazole; (7) experimenting with bioaugmentation using the naturally occurring bacteria, *Janthinobacterium lividum*; (8) continuing long-term monitoring at approximately 130 sites annually and approximately 450 sites during summer 2012 using VES, continuing to PIT tag and swab individuals at 13 long-term mark-recapture sites, temporarily installing 1 digital recording device at each of two sites; and (9) salvaging egg masses and tadpoles from populations threatened by drought.

This project will occur over the course of five years, ending in December 2016.

- **Wawona Road Rehabilitation**

The purpose of this project is to pulverize and repave approximately 25 miles of the Wawona Road between Southside Drive and South Entrance including the following elements:

- Recycling (pulverizing) and overlaying the existing 24-foot wide paved road with spot reconstruction of subgrade and shoulders as required.
- Minimal drainage work involving failed or severely undersized culverts. Slip-Lining was considered for any culverts that were relatively deep.
- Minimal work at turnouts and intersections, which were within the existing paved footprint.
- Pavement borings required to design the structural section for the roadway.
- Areas disturbed by construction were revegetated under guidance of the park revegetation staff.

The project includes resurface treatment to make the existing historic Wawona Road safe for visitors and employees as it is currently aligned. The project boundaries extend from Yosemite Valley at Southside Drive to the southern park boundary near Wawona. The

specific work includes patching of potholes, crack sealing, shoulder and curb repair, and placement of an overlay, microseal, or chip seal, depending upon the best design for the specific location. The existing historic Wawona Road would also be widened in select locations. The project boundaries extend from Yosemite Valley at Southside Drive to the southern park boundary near Wawona.

The last phase of this project is scheduled for completion in 2017. This phase would include the segment of the road between the park boundary and the South Entrance, and would be packaged for construction with the South Entrance intersection changes. This project would be subject to National Environmental Policy Act clearance through a separate compliance document.